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April 19, 2013

Liz Loeb
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ENRD/NRS
P.O. Box 7611
Washington, D.C. 20044

Delivered by email: elizabeth.loeb@usdoj.gov; vergeront.julie@epa.gov; cunningham.roylene@epa.gov

Re: Clearwater Paper Supplemental Response to January Meeting

Dear Liz:

On February 13, 2013, Clearwater Paper Corporation (Clearwater) submitted information to the U.S. Department of Justice (DOJ) and Environmental Protection Agency (EPA) to follow up on our January 14, 2013 meeting in Seattle. This letter is a supplement and provides additional information in response to the government's allegations described on January 14, 2013.

Washers. Work is now complete to replace all doors on both washers, even though Clearwater maintains that the steam puffs did not emit regulated levels of emissions under either the New Source Performance Standards (NSPS) or the National Emissions Standards for Hazardous Air Pollutants (NESHAP). With this letter, Clearwater is submitting a video and photograph of the operating washers that confirm elimination of the puffs.

Alleged NSPS and NESHAP Emissions Violations. Clearwater explained in the company's responses to EPA's information request that the puffs from the washers were steam, and based upon process knowledge were not considered by Clearwater to consist of regulated air pollutants subject to NSPS or NESHAP controls. Until EPA made its concerns clearly known to Clearwater last fall, specifically that the washer steam puffs were presumed by EPA to contain total reduced sulfur and methanol, Clearwater considered the puffs to be steam only. In response to EPA's presumption, Clearwater eliminated the puffs by installing new doors on both washers.

Alleged Inspection and Repair of Leaks Violations. Clearwater explained during our Seattle meeting that its routine inspections complied with 40 CFR §63.453(k). Ductwork, piping, and enclosures associated with the closed vent system for capture and transport of HAPs were



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properly inspected, based upon Clearwater's process knowledge. Until EPA made its concerns clearly known to Clearwater last fall, specifically that the washer steam puffs were presumed by EPA to contain methanol, mill staff did not consider the washer doors to be associated with the closed vent system for capture and transport of HAPs or subject to the inspection and repair requirements. Upon installation of the new washer doors and in response to EPA's presumption, these enclosures are now included in the routine inspections and addressed in accordance with 40 CFR §63.453(k).

Digesters. In February, we reported that after our meeting in Seattle, Clearwater initiated research to review historic mill records to recollect the basis for relying upon EPA's March 31, 2000 Q&A document (EPA Guidance) for design and operation of the M&D digester system; to learn from former mill employees, representatives of the National Council for Air & Stream Improvement, Inc. (NCASI), the American Forest and Paper Association (AF&PA), and other industry professionals who participated in discussions with EPA during development of the EPA Guidance; and to produce a technical assessment of the appropriateness of the Clearwater mill's digester configuration as compared to that described in EPA's Guidance. Based upon our research, Clearwater reaffirms that the mill is in compliance with the NESHAP.

Relevant Background. Clearwater operates two sawdust digesters. The relevant sawdust digester technology, referred to as "M&D Digester," was developed in the 1950's by pulp and paper engineers, working for the Bauer Brothers Company in Ontario, Canada, named Mr. H.S. Messing and Mr. C.L. Durkee. The Bauer Brothers Company and its M&D Digester technology are owned now by Andritz, Inc. (Andritz), the foremost pulp and paper engineering firm in North America. Andritz is a global provider of pulp production equipment and services. Andritz prepared the technical review that is attached to this letter for EPA and DOJ's consideration (Andritz Letter). See the company's website for more information on Andritz:
<http://www.andritz.com/pulp-and-paper/pp-pulp-production.htm>

To recap, our assessment is that Clearwater's continuous digesters comply with the NESHAP for the Pulp and Paper Industry, 40 CFR Part 63, Subpart S and are operated in a manner consistent with the EPA Guidance. Clearwater's M&D Digesters function as illustrated by EPA. Clearwater provides the following information in support of its position that the mill complies with 40 CFR §§63.443(a)(1)(i), (c), (d) and 63.450.

Alleged NESHAP Violations. The NESHAP requires control of the total HAP emissions from each low volume high concentration (LVHC) system, among other existing affected facilities. An LVHC system is the collection of equipment that includes the digester(s). The NESHAP requires that the LVHC system equipment be enclosed and vented into a closed vent system that



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meets the requirements of the NESHAP. EPA alleges that “[a] portion of Clearwater’s digester gas is continually being vented from the digesters to their associated sawdust bins via a rotating valve, which simultaneously feeds sawdust into the digesters and purges pressurized digester gas back into the sawdust bin” and that “[s]ince the sawdust bin is open to the atmosphere, the digester gas that is released into the sawdust bin is emitted to the atmosphere.” This venting, according to EPA’s allegation, is permissible only if Clearwater routes the pocket purge vents on the digester to a control device or Clearwater installs and operates chip steamers prior to the digesters to meet the setup specified in the EPA Guidance.¹

Clearwater’s Response. In its presentation to EPA and DOJ on January 14, 2013, Clearwater illustrated how exhaust from pocket purge vents on its rotary valves are routed through an exhaust chamber before entering the bottom of the sawdust bin, as described in the EPA Guidance.² EPA highlighted concerns regarding the potential for methanol emissions to escape from the top of the sawdust bins. The bins are open to atmosphere, as noted by EPA, a design characteristic that is not prohibited by the applicable regulations nor by the EPA Guidance. EPA also focused on the absence of a distinct “chip steaming vessel” or “chip steamer” between the rotary valve and the digester, and insisted that specific equipment is required to conform to the EPA Guidance. Clearwater does not employ a separate chip steamer between the rotary valve and the digester, and that device is not mandated by the applicable regulations, EPA’s specific statements when adopting the NESHAP, nor the EPA Guidance. It is infeasible, impractical, and unnecessary to utilize a distinct chip steamer on the M&D Digesters. According to Andritz’s experience, neither chip nor sawdust M&D Digesters are built with distinct chip steaming vessels. In Andritz’ experience, none of the operating M&D Digester systems in North America

¹ See, EPA slides and discussion presented to Clearwater on January 14, 2013. EPA suggested during our meeting that the EPA Guidance may not even apply to Clearwater’s sawdust lines since the vocabulary refers to chips, not sawdust. There is no reason to believe, however, that EPA intended to address pulping of sawdust differently than pulping of wood chips. Neither the EPA documents associated with the promulgation of the NESHAP nor the industry specific guidance documents interpreting the NESHAP distinguish between chips from roundwood, whole-tree chips, sawdust, shavings, etc. It is unreasonable to interpret the EPA Guidance terminology “chip bin” to cover only a bin holding chips for the continuous digesters to the exclusion of other types of wood furnish. In addition, there is no scientific basis to apply one set of conditions to “chip bins” and another to “sawdust bins.”

² See, Clearwater slides and discussion presented to EPA and DOJ on January 14, 2013.



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are constructed or operated the way EPA suggested on January 14, 2013, with a separate chip steamer vessel after the rotary valve.³

In response to EPA's concerns, Clearwater reinforces several significant observations for EPA and DOJ's consideration.

Did EPA intend that all emissions from digester systems be controlled under the NESHAP?
Short Answer: No.

Only emissions from the listed emission units are required to be controlled under the NESHAP. Rulemaking documents confirm that EPA did not intend to regulate all emissions from digester systems, and EPA statements during the rulemaking confirm that insignificant emission points and vents that were not typically controlled by industry were outside the scope of the regulations. Specifically, EPA did not identify chip bins, bins feeding continuous digesters, or rotary valves feeding continuous digesters as emission points to be controlled under the NESHAP.

In the initial NESHAP proposal, EPA included "all vents and pulping wastewater streams in pulping and bleaching areas" "...with the exception of certain small vents and wastewater streams defined by numerical cutoffs." 61 Fed. Reg. 9383, 9385 (March 8, 1996). Based on industry comments and its own further evaluation, however, the Agency determined that approach would be unwieldy for both industry and regulators, requiring an excessive amount of testing of pulp mill vent streams to determine whether they were above or below specified cutoffs, and likely resulting in over regulation in some cases and under regulation in others. See 61 Fed. Reg. at 9389; see also 72 Fed. Reg. 18,504, 18,520 (April 15, 1998); Pulp, Paper, and Paperboard Industry – Background Information for Proposed Air Emission Standards – Final EIS; Manufacturing Processes at Kraft, Sulfite, Soda, and Semi-Chemical Mills, EPA-453/R-93-050b, October 1997 ("Final EIS") at pp. 1-30 to 1-31.

In the final NESHAP, EPA changed its approach to "naming specific vents and streams subject to the standard instead of determining affected emission points and wastewater streams based on broad groups of equipment with exclusions for small streams not currently being controlled, as was done at proposal." 61 Fed. Reg. at 9388; 72 Fed. Reg. at 18,519 ("the applicability cutoffs contained in the proposed rule have been replaced in favor of specifically naming process

³ See letter from Andritz to Bob Pernsteiner dated April 11, 2013 interpreting the EPA Guidance (Andritz Letter).



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equipment and condensate streams that would be required to meet the rule”). By naming the particular equipment required to be controlled, EPA intended to encompass equipment vents that were controlled at the “MACT floor,” as contemplated at proposal, without the potential for covering many smaller, insignificant emissions.⁴

EPA did not intend to require collection and incineration of minor vents associated with pulping, and not typically controlled by industry. In particular, EPA never identified chip bin vents, nor the point where chips are fed into the digester, as covered sources of emissions. *See, e.g.,* Pulp, Paper, and Paperboard Industry – Background Information for Proposed Air Emission Standards; Manufacturing Processes at Kraft, Sulfite, Soda, and Semi-Chemical Mills, EPA-453/R-93-050a, October 1993 at 2-9 to 2-13 (discussing continuous digester blow tank gases (the blow tank follows the digester) and digester relief gases, but no mention of chip bins, digester feed valves, etc.; no emission point from chip bins shown on flow chart); *id.* at 3-3 to 3-6 (identifying pulping and bleaching emission points – again chip bins or chip feed point or digester charging for batch digesters and rotary valves or compression screw feed for continuous digesters were not identified emission points; *id.* at 3-3 (EPA undertook to “determine a control strategy *for the identified pulping and bleaching emission points*” (emphasis added)). *See also* 58 Fed. Reg. 66,078, 66,135 (listing the identified emission points and noting that “[t]he air emission points selected for today’s proposed regulations include all significant points in the pulping and

⁴ *See, e.g.,* 61 Fed. Reg. at 9389 (“At proposal, EPA had limited data to characterize some of the smaller emission points...within the pulping component. However, based upon experience and engineering assumptions, these small vents and condensate streams were assumed to be uncontrolled at the floor and not reasonable to control beyond the floor....[B]y specifically defining the equipment systems and associated wastewater streams subject to the MACT standard (i.e., only the equipment systems and wastewater streams specifically enumerated would be subject to the standard)[,] EPA believes this change will result in the same level of control at the MACT floor for both wastewater and process equipment contemplated in the proposal,...”). *See also* Final EIS at p. 1-31 (final rule requires “specific vent and condensate streams...to be controlled” based on “information presented in response to industry surveys used to characterize controls that are installed at existing mills and in comments on the proposed rule”), p. 4-68 (additional information obtained after proposal “allowed EPA to identify which vent and condensate streams are actually controlled at the floor level of control”), p. 4-69 (the “emission points and condensate streams that are being controlled in the final rule are fundamentally the same emissions sources that EPA intended to be controlled in the proposed rule”).



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bleaching processes....”), 66,138-40 (listing emission points – not including chip bins or digester feed – to be controlled as part of the “MACT floor”), 66,139 (noting that “there exist low flow or episodic pulping and bleaching component vents for which no information was gathered, but which are believed to be uncontrolled” and therefore not identified in the proposed rule), 66,142 (“Based upon previous experience and engineering judgment, these vents are assumed to be uncontrolled at the floor. In addition, EPA decided not to require these sources to be controlled under the NESHAP.”).

On January 14, 2013, EPA insisted that if Clearwater’s digesters are not configured as shown in the EPA Guidance, then emissions from the chip bins must be controlled.⁵ Not only does this interpretation of the EPA Guidance conflict with the NESHAP itself and EPA’s statements made during development of the NESHAP, the EPA Guidance cannot be interpreted to supersede EPA’s regulations that impose control requirements on specific, designated emission sources. The EPA Guidance is not a regulation and does not create new enforceable obligations.⁶

In short, even if there were methanol emissions from Clearwater’s chip bins, rotary valves, or digester charging, the NESHAP does not require emissions controls. EPA’s assertions that all emissions must be controlled or that emissions from a digester configuration other than the one depicted in the EPA Guidance must be controlled reflect a presumption that all pulping emissions must be controlled under the NESHAP. To the contrary, as explained above, EPA made a very deliberate decision not to take that approach in the regulations.

Does Clearwater have to control emissions from the sawdust bins? Short Answer: No.

EPA and DOJ specifically expressed concern about emissions from the bins. The bins, however, “are not subject to any requirements under the NESHAP, except in one circumstance.”⁷ Only if

⁵ EPA slide #13 presented to Clearwater on January 14, 2013 reads: “The Q&A document specifically states that if the facility’s operations are not the configuration as described, then the emissions from the chip bin must be controlled.”

⁶ EPA Guidance, at page 1 reads: “This guidance does not constitute rule making by the EPA and may not be relied on to create a substantive or procedural right or benefit enforceable actions, at law or in equity, by any person.”

⁷ EPA Guidance, Q9.



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the bin is serving “the same function as a chip steamer,” and the steam entering the bin is not fresh steam, then the bins (effectively chip steamers) are covered by the Digester system definition at 40 CFR §63.441, and are subject to regulation.

Clearwater’s bins are not chip steamers, as defined by the NESHAP. A chip steamer means “a vessel used *for the purpose of* preheating or pretreating wood chips prior to the digester.” 40 CFR §63.441 (emphasis added). As described in correspondence with IDEQ (and copied to EPA) in 2000, Clearwater’s bins were designed to receive exhaust from the rotary feed valves into the bottom of the bins for the purpose of complying with the NESHAP.⁸ The purpose of routing pocket purge exhaust into the bins was not to preheat or pretreat wood prior to digesting. Preheating or pretreating sawdust prior to digestion is not needed or recommended for sawdust digestion and can lead to significant process problems.⁹ In fact, the mill’s No. 2 sawdust bin was originally constructed with presteaming, but this activity caused plugging and sawdust transfer issues for the mill and was discontinued prior to December 2000.¹⁰

As described by the mill to IDEQ (and copied to EPA) in 2000, the bins were not considered or operated as presteamers prior to modifications to comply with the NESHAP, nor were they modified to function that way. Rather, they were modified for the purpose of assuring that any small amount of HAPs remaining after the rotary valve pockets are purged with fresh steam will be absorbed into the sawdust and returned to the digester. Specifically, “[t]he existing sawdust bins [cannot] accept the valve steam without plugging up with wet sawdust and adversely affecting the operation of the digesters. Therefore, [the mill] plans to install new sawdust (chip) bins capable of accepting all the steam from the valves while maintaining a level of 10-15 feet of sawdust above the steam injection point.”¹¹ “All the steam from the valves” was anticipated to

⁸ See Clearwater response submitted on April 28, 2011, pages CPL001261-CPL001328.

⁹ As the Andritz Letter makes clear, the size and surface area of wood chips make it beneficial to preheat and pretreat chips with steam to facilitate impregnation of pulping liquor during the digestion stage. In contrast, the size and consistency of the sawdust makes preheating and pretreating with steam unnecessary to achieve adequate mixing of sawdust fiber and liquor during sawdust digestion.

¹⁰ See Clearwater response submitted on April 28, 2011, page CPL001295, CPL001297.

¹¹ See Clearwater response submitted on April 28, 2011, page CPL001297.



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represent an insignificant amount of emissions.¹² Clearwater did not design its new bins in 2000 to be chip steamers “for the purpose of preheating or pretreating wood chips prior to the digester.” To do so, would have been problematic for sawdust transfer and unnecessary for digestion, as described in the Andritz Letter. Instead, Clearwater designed its bins to match the manner of operation described in the EPA Guidance so that no further controls would be required for bins. Accordingly, the bins are not subject to any requirements under the NESHAP, because the bins are not chip steamers.

Does Clearwater have to control emissions from the rotary valves that may escape through the bins? Short Answer: No.

Similar to the chip bins, the NESHAP does not include the rotary feed valves nor digester charging within the scope of covered emissions sources. In response to industry requests for clarification, the EPA Guidance established *operating conditions* that minimize emissions and, as a result, satisfy any requirement for controls. The mill’s NESHAP compliance strategy was developed to match those operating conditions.¹³ Former owners of the mill, began assessment of compliance with the NESHAP in at least 1998. Upon approval of expenditures in 2000, the mill invested over \$3,000,000 in capital to install state of the art equipment to feed sawdust and to collect exhaust from the rotary feed valves of the two M&D Digesters. That project included specific details to capture and control vent gases, to minimize emissions that may escape from the rotary valve, to comply with the NESHAP, and to match the EPA Guidance.¹⁴ For example:

- *Fresh steam* is applied to purge the rotary valve pockets, as described in the EPA Guidance.

¹² See Clearwater response submitted on April 28, 2011, page CPL001296, referring to consideration of these emissions by IDEQ as insignificant; and the digester chip feeders listing as an insignificant activity under IDAPA 58.01.01.317. Notably, the term “steam” is a misnomer in the quoted phrase “all the steam from the valves,” since by the time the pocket purge exhaust enters the sawdust bin it has gone through cooling and condensation in the exhaust chamber.

¹³ See Clearwater response submitted on April 28, 2011, pages CPL001261-CPL001328.

¹⁴ EPA Guidance, page 7.



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- The pocket purge vent gases (that remain after most of the pocket purge steam has been recirculated) are collected and directed to an exhaust chamber before entering the bottom of the sawdust feed bins. As shown to EPA and DOJ, any escaped exhaust is directed to the *bottom of the bins* “at a sufficiently low level such that the emissions are covered” by fresh sawdust at a depth monitored and maintained at ten to fifteen feet or more, as described in the EPA Guidance.
- The sawdust bins conform to the EPA Guidance, as well. Any gases that may escape from the rotary valves to the bins are condensed and absorbed into the raw sawdust for feed back to the M&D Digesters. This exhaust gas is directed into the bottom of the bin below *ten to fifteen feet or more* of sawdust, as described in the EPA Guidance. Given the temperature difference between the sawdust in the bin (ambient) and the boiling point of methanol (approximately 150 degrees Fahrenheit) any methanol that reaches the bins condenses on the sawdust and returns to the process.

Installation and operation of the existing systems conform to the three criteria outlined in the EPA Guidance: fresh pocket purge steam, introduction of the remaining contaminated pocket steam near the bottom of the bin, and consistent bin level at ten to fifteen feet or more. Operation in this manner, EPA determined, “does not release HAP emissions” and bin vents need not be controlled, because the methanol will condense on the material in the bin and be fed back into the digester.¹⁵ Andritz reported that this approach is consistent with installations employed at other North American mills and is consistent with the design of new M&D Digester systems. State of the art equipment and procedures outlined in correspondence between the mill and IDEQ (and copied to EPA) in 2000 remain in place today. Accordingly, emissions (if any) from the rotary valves that may escape through the bins need not be controlled.

Does Clearwater have to install a chip steamer between the rotary valve and the digester?
Short Answer: No.

On January 14, 2013, EPA and DOJ insisted that installation and operation of a separate device, a chip steamer, is required to conform to the EPA Guidance. This view is inconsistent with EPA’s position during development of the NESHAP. Clearwater’s configuration matches exactly what was described by EPA in 1997 when adopting the NESHAP. In response to comments, EPA added a definition of “chip steamer” to the final rules and rejected industry’s

¹⁵ EPA Guidance, page 7.



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suggested definition (“A separate vessel for the purpose of preheating wood chips prior to the digester, using flash steam from the digester or live steam”). EPA stated: “The industry definition appears to be technically correct, however, the rule definition was slightly modified to remove the term ‘separate’ to acknowledge that chip steamer vessels may be integrated into the digester system.”¹⁶ EPA deliberately dropped the word “separate” to emphasize that a separate vessel is not required and that steaming can be integrated into the digester system. That is precisely the configuration that Clearwater operates. Therefore, even if EPA were to insist further that Clearwater operate a chip steamer in order to rely upon the EPA Guidance (an interpretation that Clearwater does not believe is correct), each M&D Digester has steaming integrated into the digester system as anticipated by EPA during the NESHP development.

In light of this rulemaking history, the purpose of the illustration in the EPA Guidance was not to require a mill with a continuous digester to install and operate a separate chip steamer. Rather, the purpose was to illustrate how proper management of the potential emissions from rotary valves at continuous digester systems results in a situation where HAPs are not emitted and no further controls are needed. On a functional basis, Clearwater’s configuration is no different from EPA’s illustration: Steaming takes place prior to the digester within the rotary valve rather than in a separate vessel.¹⁷ The rotary valve pockets are “blasted” with fresh steam at the bottom of the valve rotation to purge the valve pocket of sawdust that has not already fallen into the digester and contaminated steam from the digester and from recirculation of primary pocket purge exhaust. After that, the pocket purge steam exhaust is vented into the bin (although in the rotary valves used at Clearwater, most of the pocket purge has already been vented through the Primary Exhaust and recirculated to a pocket that has been filled again with sawdust at the beginning of the valve rotation cycle). The residual pocket purge vapor enters the sawdust bin near the bottom of the bin where the depth of sawdust is maintained at ten to fifteen feet or more. Clearwater’s operations conform to industry practice and have all of the elements (either

¹⁶ *Pulp, Paper, and Paperboard Industry—Background Information for Promulgated Air Emissions Standards* (October 1997) at 14-8.

¹⁷ See Clearwater slide #16 presented on January 14, 2013, shows pre-purge steam, pocket purge steam, and dome feed steam applications consistent with Andritz’ assessment of common industry practice. See also, R.T. Boughner, Strategic Importance of Sawdust Pulping at Mackenzie Bauer M&D Digester Technology at 6-8 (describing another M&D continuous digester fed by a Bauer rotary valve, at a Canadian mill pulping sawdust). Paper is available at: <http://www.tetrahedron.ca/2012uploads/112-2012.pdf>



identical, or functionally the same) that, according to the EPA Guidance, result in no emissions of HAPs and no requirement to control the vent on the chip bin.

According to Andritz, no North American pulp and paper mill operating M&D Digesters has a separate and distinct chip steamer vessel between the rotary valve and the digester.¹⁸ Inserting a separate vessel at this stage is inconsistent with M&D Digester technology engineering, design, and construction.¹⁹ Andritz affirms that Clearwater's M&D Digester configuration, installed in 2000 to comply with the NESHAP, was and remains state of the art for M&D Digester installation and operation. Accordingly, installation of a separate chip steamer device is not required under the NESHAP itself, is not consistent with EPA's statements made during the rulemaking process, and is not prompted by any reasonable interpretation of the EPA Guidance.

EPA's Requested Relief. On January 14, 2013, EPA outlined several options for injunctive relief to address EPA's allegations.²⁰ Clearwater satisfied these requests, as summarized in *italics*:

- Fully enclose washers and route to closed vent system (no detectable leaks): *Without admitting any of EPA's allegations, Clearwater completed work on installation of new washer doors on March 4, 2013.*
- Inspect and Repair Leaks: *Without admitting any of EPA's allegations, the washers are currently covered by routine inspections and repair evaluations conducted by the mill.*
- No TRS Emissions > 5ppm: *Without admitting any of EPA's allegations, Clearwater completed work on installation of new washer doors on March 4, 2013.*
- Route pocket purge steam vents on the digesters to a control device meeting requirements of 40 CFR 63.443(d) or install and operate chip steamers prior to the digesters to meet the

¹⁸ See, Andritz Letter.

¹⁹ Notably, EPA's interpretation of the illustration in the EPA Guidance also conflicts with EPA's goal to reduce emissions under the NESHAP. Even if technically feasible or operationally desirable, adding a chip steamer on M&D Digesters (either chip or sawdust processes), would create a new source of potential methanol emissions.

²⁰ See EPA slide #16 presented to Clearwater on January 14, 2013.



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set up specified in the Q&A document: *Clearwater is in compliance with the NESHAP. Emissions from Clearwater's rotary valves, digester charging, and bins are not subject to controls under the NESHAP. Clearwater's digester systems operate in the manner described in the EPA Guidance. Installation of a separate chip steamer is not required by the NESHAP, is incompatible with EPA's statements in the 1997 rulemaking, is incompatible with operation of M&D Digesters in North America, and would add an additional emissions source. EPA's reliance upon the 'set up' illustrated in the EPA Guidance is misplaced. Clearwater's existing configuration and operation conforms to the manner and conditions described by EPA to reduce emissions from bin vents without further emissions controls.*

Conclusion. For the reasons described in this letter, Clearwater requests that EPA and DOJ consider the company's responses to satisfy EPA and DOJ's concerns. During our call on May 20, 2013, Clearwater looks forward to further discussion with EPA and DOJ on the next steps toward resolution of EPA's allegations. Please let us know if participation by representatives of Andritz would be useful. Thank you for considering this research and our good faith efforts to address EPA's concerns.

Sincerely,

Krista McIntyre

Attachments

cc: Marv Lewallen, Clearwater Paper Corporation
Julie Vergeront, U.S. Environmental Protection Agency

04/11/2013

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Mr. Bob Pernsteiner
Clearwater Paper Corp.
803 Mill Road
Lewiston, ID 83501

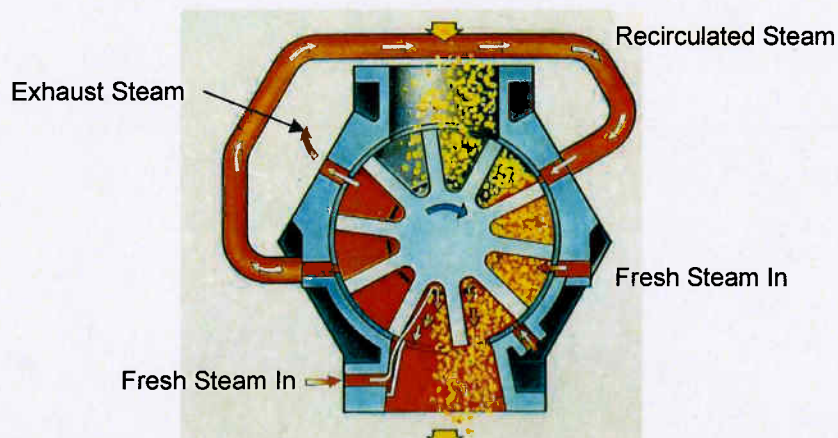
Subject: Sawdust Feed to M&D Digesters

Dear Bob,

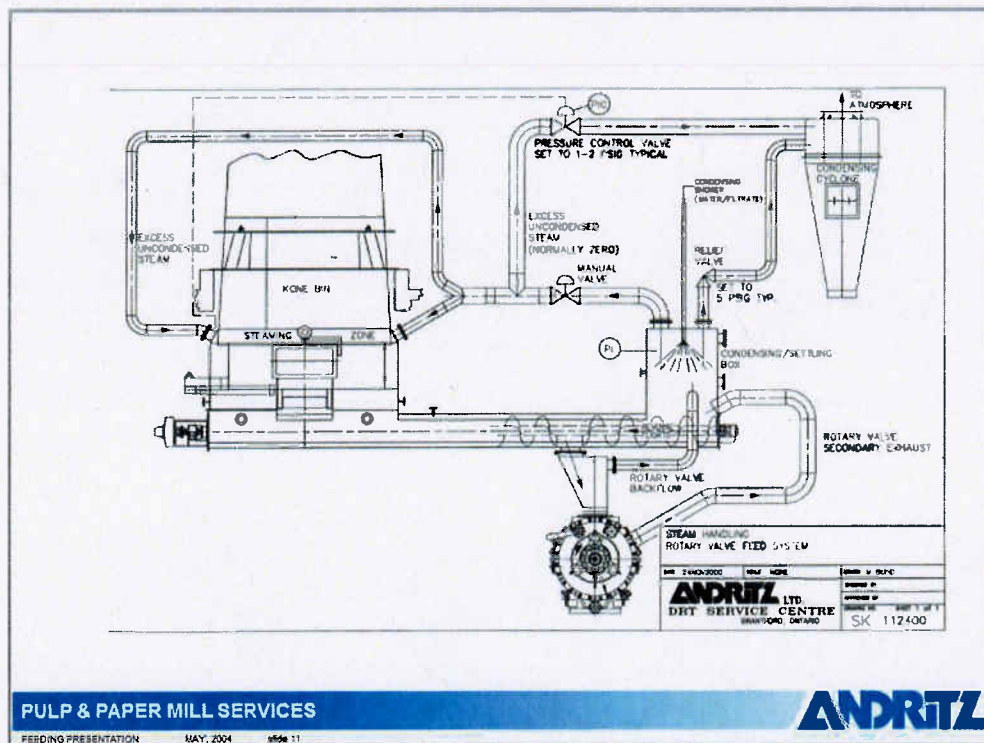
In response to your request here are some details regarding the history and operations for sawdust M&D Digester systems.

While there have been some changes to the M&D digester system equipment over the years, the basic configuration of sawdust feed from the chip bin into the digester and the rotary valve steam purge/exhaust collection arrangement has remained unchanged for several decades. A typical sawdust system includes a bin or tower which discharges sawdust into a metering device, typically a screw conveyor. The metering device feeds the rotary inlet valve which in turn discharges directly into the digester vessel. See Attachment A, a typical sawdust application from the 1970s.

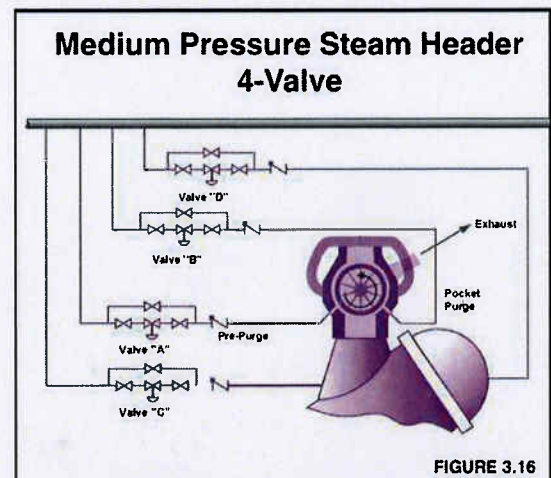
Fresh steam is used in the inlet rotary valve for heating of the sawdust, pressurizing the valve pockets and as a purge to help push sawdust out of the valve pockets to fall by gravity into the digester vessel. The majority of this steam is either discharged into the digester vessel with the sawdust or is recycled from the discharge side of the valve to the inlet side of the valve. Only a small amount is exhausted from the valve.



The exhaust steam is routed to a separation/settling box where baffles and sometimes a condensing shower are used to help knock out any sawdust that is carried with it. For many years an open bottom separation box connected directly to the housing of the metering conveyor has been used. See Attachment B, flow diagram from 1995. This allows the knocked out sawdust to drop back into the conveyor. From the separation box steam is exhausted to the bin and to a condensing cyclone. The steam that is carried to the bin enters well below the normal sawdust level.

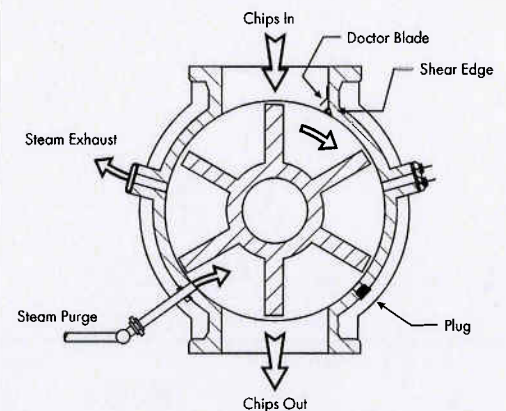
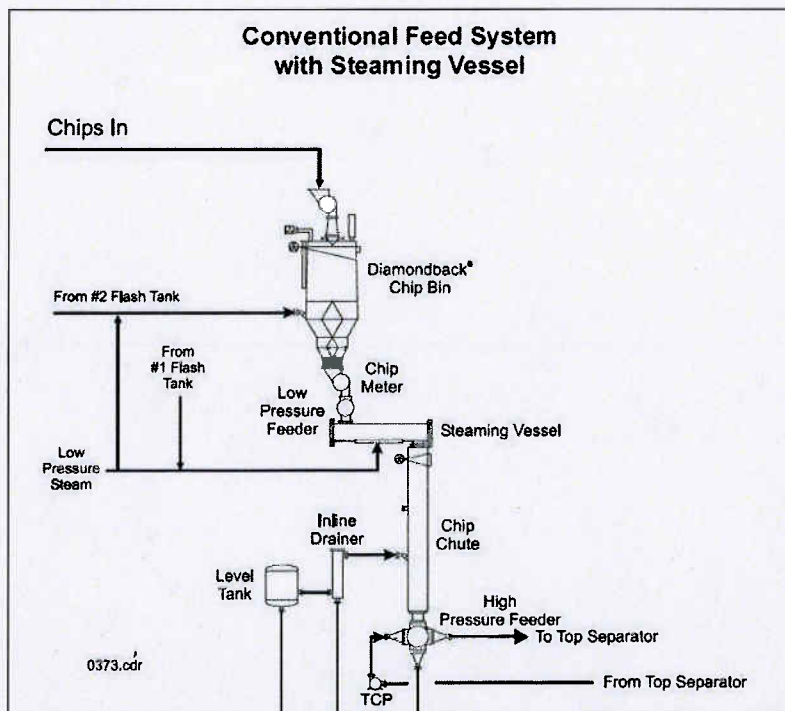


The diagram presented in the Q&A document page 6 appears to represent a rotary valve mounted on the M&D digester inlet nozzle. The inlet nozzle and the dome area of the digester are the pre-steaming/initial heating zone of the M&D digester. The diagram labels the area beneath the rotary valve as a pre-steamer. I have researched this and consulted with other M&D Digester experts. To our knowledge, all operating chip and sawdust M&D Systems have a metering screw of some type feeding the rotary valve with the valve mounted directly to the digester vessel inlet nozzle. We are not aware of any M&D system having another pre-steaming device following the



rotary valve. Any device in that position would have to be built to code, designed to withstand the digester design pressure and temperature, which would be cost prohibitive. Since all required heating can be done using direct steam injection at the valve and into the digester vessel itself, there would be no need for this extra device and the associated expense.

One other possibility is that this diagram was generated based on the configuration of a "Kamyr" continuous chip digester, where there is a Steaming Vessel (pre-steaming conveyor) installed between the two rotary feeders. This system takes the pressure increase in two steps. The system is at atmospheric pressure to the Low Pressure Feeder. Steam added to the Steaming Vessel for preheating of the chips brings the pressure to 15 psi. In these systems, the High Pressure Feeder serves as the pressure "lock" between the feed system and the digester vessel. Cooking liquor is used to sluice chips from the High Pressure Feeder to the Top Separator at the top of the digester vessel, where a basket strainer separates chips from cooking liquor. Chips and part of the liquor fall into the digester, with the remaining liquor being recycled and replenished before it returns to the High Pressure Feeder. For these systems a pre-steaming conveyor, the Steaming Vessel, follows a rotary valve, the Low Pressure Feeder. The Low Pressure Feeder also uses a steam purge and has a steam exhaust that is taken to the bin.



Low Pressure Feeder

The M&D System's metering conveyor, located upstream of the inlet rotary valve, has traditionally been referred to as a "Pre-steamer". This is a hold-over from the original M&D systems which were developed to process chips, not sawdust. For chip applications, it is possible and desirable to add steam to the bin, thus taking

advantage of the benefits in cooking liquor impregnation of the chips that atmospheric pre-steaming can provide. Two bin types that are commonly used for atmospheric pre-steaming of chips are the Help® Bin (Kone) with metering screw and the Diamondback® Chip Bin with metering screw. These are typically sized for 15-20 minutes of chip retention time. Fresh and/or flash steam are added at the lower portion of the bin.

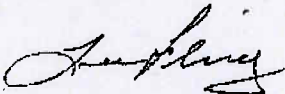
For sawdust applications the term "Pre-steamer" is a misnomer. It is not possible to "presteam" sawdust as you would chips because transfer of the sawdust becomes problematic. Stable discharge from the bin to the metering conveyor can be difficult and can lead to erratic feed into the rotary valve. Only small amounts of steam as would be typical of the exhaust steam arrangement shown above are added to the bin/metering conveyor in sawdust applications. There have been trials using the Help® Bin with metering screw for pre-steaming of sawdust. These trials were unsuccessful and short lived due to sawdust transfer problems. Nor is it necessary to presteam sawdust. Its small particle size allows steam to penetrate and heat sawdust very quickly. Longer retention times in the bin and/or conveyor do not provide significant process benefits as it would for chips.

After reading through the Q&A document we believe that Clearwater's M&D Digester systems, as they exist today, comply with the guidance given. Clearwater uses only fresh steam for the rotary valve pocket purges and steam to the chip bin enters at a low level, within the required 10-15 feet below the normal chip level.

The M&D systems at Lewiston are of a typical M&D Digester configuration and control scheme for white liquor kraft cooking of sawdust. There are many others like these including one at Catalyst Paper, Elk Falls, BC (now shut down) and one at Mackenzie Pulp, Mackenzie BC which are essentially identical other than size. Many similar systems (differences in bin and metering conveyor type) can be found at several other northwest US and Canadian mills. A new sawdust system sold by ANDRITZ today would have a similar configuration, utilizing a Help® Bin with metering screw discharging into the rotary valve, the same control scheme, and the same exhaust steam arrangement. An overview of the most recent M&D System sale in 2004 is shown in Attachment C. This system includes the typical separation box on the metering conveyor although that detail does not show on this diagram.

I hope that this background information is helpful. Do not hesitate to contact us if you require additional details.

Best regards,



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(b) (4)



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The diagram illustrates the process flow of a DD Washer 3060.4LC system. Key components and flows include:

- Inputs:** Pins/Fines, White liquor MP-steam, HW (Hot Water), and MW (Medium Pressure) steam.
- Process Flow:** The material flows from the DD Washer 3060.4LC through an O₂-stage and a Filtrate stream.
- Outputs:** Out, To reject system, and Evaporation.
- Energy Flow:** MW steam is used for heating and evaporation, with HW input and output streams.